

UG	Department: Chemical Engineering
Course Code: CHP217	Course Name: Simulation Lab
Credit: 2	L-T-P: 0-0-3
Version: 1	Approved on:
Prerequisite Course: Nil	
<p>Any 10 problems out of the following:</p> <ol style="list-style-type: none"> 1. Basic commands for matrix operations and plotting figures 2. To write a MATLAB program for solving simultaneous linear algebraic equations by Gauss Elimination and Gauss Jordan method. 3. (a) To find the roots of a polynomial, (b) find the coefficient of polynomial for given roots. (c) find the derivative of polynomial (d) division and multiplication of polynomial 4. To solve nonlinear algebraic equation using Newton-Raphson method in MATLAB 5. To fit a curve by using a linear or nonlinear regression 6. To plot different types of functions, xy plot, log-log plot, semilog plot, surface plot, theta plot, etc. 7. To solve different types of problem by symbolic computation 8. To solve linear differential equations analytically in MATLAB 9. To solve differential equations by using different types of solvers in MATLAB 10. To write a MATLAB program for solving first order simultaneous differential equations (initial value problems) using Euler and Runge-Kutta method 11. To solve the linear and nonlinear algebraic equations in Simulink 12. To solve the differential equations in Simulink 13. To solve a Conduction Heat Transfer problem (steady state and unsteady state) 14. To solve CSTRs in series problem (Steady state and unsteady state) 15. To solve differential equation based chemical engineering application problem in MATLAB 16. To solve partial differential equation <p>Books</p> <ol style="list-style-type: none"> (1) Gupta, S. K., " <i>Numerical Methods for Engineers,</i>" New Age International Ltd., New Delhi, 1995. (2) Chapra, S.C., "Applied Numerical Methods in MATLAB", Tata McGraw Hill, 2007. (3) Gilat, A., MATLAB: An Introduction with Applications, Wiley, 2008. (4) Palm III, W.J., "A Concise Introduction to MATLAB," Tata McGraw hill, 2012. 	